

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) An array composition comprising:
 - a) a substrate with a surface comprising discrete sites; and
 - b) a population of microspheres comprising at least a first and second microsphere, wherein said first microsphere comprises a plurality of different target nucleic acid molecules ~~analytes~~ comprising sequences from a first individual and wherein said first microsphere further comprises a first identifier binding ligand which identifies said plurality of different target nucleic acid molecules ~~analytes~~ from said first individual;
wherein said second microsphere comprises a plurality of different target nucleic acid molecules ~~analytes~~ comprising sequences from a second individual and wherein said second microsphere further comprises a second, different identifier binding ligand which identifies said plurality of different target nucleic acid molecules ~~analytes~~ from said second individual, wherein said plurality of different target nucleic acid molecules ~~analytes~~ are covalently attached to each of said microspheres, and wherein said microspheres are randomly distributed on said surface.
2. (cancelled)
3. (cancelled)
4. (previously presented) The array composition according to claim 1 wherein said identifier binding ligands are nucleic acids.
5. (cancelled)
6. (currently amended) The array composition according to claim 1 ~~5~~ wherein said target nucleic acid molecules ~~analytes~~ comprise genomic DNA.
7. (cancelled)
8. (original) The array composition according to claim 1 wherein said substrate is a fiber optic substrate.

Application No.: 10/759,576

9. (original) The array composition according to claim 1 wherein said substrate is plastic.

10. (original) The array composition according to claim 1 wherein said discrete sites are wells.

11. (cancelled)

12. (cancelled)

13. (cancelled)

14 (currently amended) An array composition comprising a substrate comprising discrete sites wherein each of said discrete sites comprises a microsphere having a different identifier binding ligand and a plurality of different covalently attached target nucleic acid molecules ~~analytes~~ comprising sequences from different individuals, wherein said different identifier binding ligands each identify said plurality of different target nucleic acid molecules ~~analytes~~ from different individuals; wherein said discrete sites are at a density of about 10,000 to 1,000,000,000 discrete sites per cm².

15. (cancelled)

16. (currently amended) The array composition according to claim 14, wherein said plurality of different target nucleic acid molecules ~~analytes~~ are covalently attached to microspheres, wherein said microspheres are distributed in said discrete sites.

17. (cancelled)

18. (currently amended) The array composition according to claim ~~14~~ 17 wherein said target nucleic acid molecules ~~analytes~~ comprise genomic DNA.

19. (cancelled)

20. (original) The array composition according to claim 14, wherein said substrate is a fiber optic substrate.

Application No.: 10/759,576

21. (original) The array composition according to claim 14, wherein said substrate is plastic.
22. (original) The array composition according to claim 14, wherein said discrete sites are wells.
23. (cancelled)
24. (cancelled)
25. (original) The composition according to claim 1 or claim 14, wherein said discrete sites are at a density of about 100,000 to 10,000,000 discrete sites per cm².
26. (original) The composition according to claim 1 or claim 14, wherein said discrete sites are at a density of about 10,000,000 to 1,000,000,000 discrete sites per cm².
27. (original) The composition according to claim 1 or claim 14, wherein said discrete sites are at a density of about 10,000 to 100,000 discrete sites per cm².
28. (currently amended) A composition comprising a population of microspheres, said population comprising at least a first and second microsphere, wherein said first microsphere comprises a plurality of different target nucleic acid molecules ~~analytes~~ comprising sequences from a first individual, wherein said first microsphere further comprise a first identifier binding ligand which identifies said plurality of different target nucleic acid molecules ~~analytes~~ from said first individual, and said second microsphere comprises a plurality of different target nucleic acid molecules ~~analytes~~ comprising sequences from a second individual, wherein said second microsphere further comprise a second, different identifier binding ligand which identifies said plurality of different target nucleic acid molecules ~~analytes~~ from said second individual, wherein said plurality of different target nucleic acid molecules ~~analytes~~ are covalently attached to each of said microspheres.
29. (canceled)
30. (canceled)

31. (previously presented) The composition according to claim 28, wherein said identifier binding ligand is a nucleic acid.

32. (cancelled)

33. (currently amended) The composition according to claim ~~28~~ 32, wherein said nucleic acid molecules ~~acids~~ comprise genomic DNA.

34. (cancelled)

35. (cancelled)

36. (cancelled)

37. (currently amended) The composition according to claim 1, 14 or 28, wherein said plurality of different target nucleic acid molecules ~~analytes~~ on each of said microspheres is composed of about 2 to 100,000 different target nucleic acid molecules ~~analytes~~ s.

38. (currently amended) The composition according to claim 14, further comprising a population of microspheres randomly distributed at said discrete sites, wherein individual microspheres in said population each comprise a plurality of different target nucleic acid molecules ~~analytes~~ comprising sequences from an individual and wherein each said microsphere further comprises a unique identifier binding ligand.